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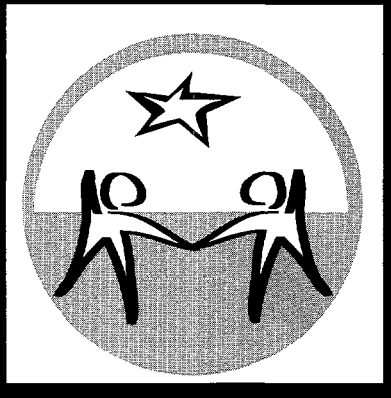

Causalities between Social Capital and Social Funds

Jesper Kammersgaard

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CAUSALITIES BETWEEN SOCIAL CAPITAL AND SOCIAL FUNDS

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Abstract

There is a growing consensus among development practitioners that participatory mechanisms are necessary in securing the success of development projects. Through the lens of social funds this paper looks at the concept social capital in order to explain why participation is crucial for development outcomes. Two hypotheses are stated regarding the causalities between social capital and project sustainability. On the background of a definition of social capital different operationalizations are reviewed in order to propose a methodological approach for testing the hypotheses.

Foreword

The World Bank has supported more than 40 social funds in most Regions of the world; they have become important instruments in the World Bank's increasing support for Social Protection. Operational experience has shown that one of the benefits of these operations is increased capacity in communities to demand and manage development funds. At the same time as the operational experience is coming in the World Bank is gradually getting more and more interested in the concept of social capital.

This paper proposes a way of defining social capital that is operationally relevant and explores theoretically the potential links between social funds and social capital. The paper demonstrates that a simple definition of social capital is probable better to use for operational purposes and proposes a strategy for measuring social capital as it relates to social funds.

The paper is one of several background papers being prepared for the World Bank's Social Protection Sector Strategy Paper, which will outline the analytical concepts behind social protection and define an operational strategy for the World Bank's support for social protection initiatives.

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I WHAT IS SOCIAL CAPITAL?

The term social capital can be traced back to the nineteenth-century, where the Italian Risorgimento movement conceptualized *valor sociale* as the educative feature of the growth and practice of self-governing institutions (Hyden, 1997, p. 5).[1] But, it was the work of Robert Putnam on the differences in government performance and economic development between North- and South-Italy that really brought the concept back into social science and initiated a large amount of research into it (Putnam, 1993).

The number of articles about social capital approaches the number of different definitions of the concept. So, one major challenge in building a theory of social capital is to develop a definition around which consensus between social scientists will develop. In this paper a simple definition of social capital is claimed and by an illustrative game-theoretic example it is clarified which problems we need to solve or mitigate in order to increase the level of social capital. This is what we call the micro perspective of social capital.

Social capital is influenced by a number of different variables especially the institutional setting of society. By looking at a diagram illustrating the connection between social capital, civil society and its associated formal and informal institutions, we sketch the institutional setting wherein social capital operates. This is what we call the macro perspective of social capital. The two perspectives help to clarify what we are talking about when we are talking about social capital. Additionally, it raises a number of questions, which need to be answered in order to increase our understanding of social capital. Secondly, this paper will present the organizational setup of social funds and demonstrate the importance of social capital for the sustainability of social funds projects, and the workings of sustainability in reinforcing the accumulation of social capital. Thirdly, we present a review of the research initiatives on

social capital taken by the World Bank. Finally, we will look at different ways of measuring social capital and try to figure out which of them can possibly be applied in a social fund setting.

1.1 THE DEFINITION

This paper defines social capital in informal terms as **trust influencing collective action**. For this definition to be of any use there is a need to find out what is meant by the term trust. Dasgupta (1997) defines trust as expectations about the actions of others that have a bearing on ones own choice of action, when that action is chosen without observing the actions of those others. The following section will discuss why it is reasonable to view trust in that perspective.

1.2 THE MICRO PERSPECTIVE

Figure 1 illustrates a game of trust when trust is looked at from a micro perspective. An agent entering into a transaction and deciding whether or not to trust the opponent is called a *trustor* (T1), while an opponent who decides whether or not to keep to the trust is called a *trustee* (T2). Let us assume that T1 is choosing her action before that of T2 and that T2 is able to observe that action, i.e., we have a sequential game.[2] The choice of T1 is whether to trust or to monitor the actions of T2. If she monitors, the game ends and both players receive the payoff *0*. If she trusts the move goes to T2, which chooses either to honor the trust of T1 and act trustworthy or to cheat on T1 and act opportunistically. If T2 plays opportunistic, she gets the pay-off *b*, while T1 receives the pay-off *a*; if T2 acts trustworthy both players obtain the pay-off *1*.

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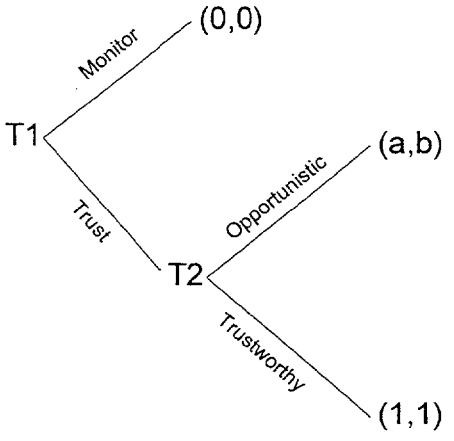
[1] Valor sociale is an Italian term roughly translating into social capital.

[2] Both simultaneous and sequential games can illustrate the problems relating to trust.

Figure 1 The trust game



The trust problem can be illustrated by Figure 1. If $a < 0$ and $b > 1$ we have the well-known prisoner's dilemma game where the only equilibrium (when both players are rational) is for T1 to monitor. The problem is that this outcome is Pareto dominated by the situation where T1 trusts and T2 honors that trust and acts trustworthy. This problem will be referred to as the trust problem.[3]

The question is what causes the trust problem? Or, asked in another way, what makes T1 choose the strategy of monitoring? The problem is that T2 can possibly play opportunistic. If $b > 1$, T2 has an incentive to play opportunistic, while if $b < 1$, T2 has the incentive to play trustworthy. T2's incentives are clearly a function of the pay-offs. So, T1 chooses to monitor, because otherwise T2 will have an incentive to cheat on her and play opportunistic. This cause of the trust problem will be referred to as the incentive problem.

Consider another scenario of the game in Figure 1. Here there are two types of T2 players, trustees (type 1) and opportunists (type 2). The opportunists have a pay-off $b > 1$, while the trustees have a pay-off $b < 1$. So with no uncertainty about the type of player, the outcome of the game will be the Pareto optimum (1,1) when T1 faces a trustee and the inefficient

[3] The trust problem can also be illustrated by coordination games, but the PD game is excellent as an illustrator, because the Pareto-solution is not an equilibrium.

outcome (0,0) when facing an opportunist. The problem is that in most social interactions, T1 does not know which type she is facing. The way to model this is typically to assign a probability distribution to a stochastic variable X, where X = The opponent is of type *i*. In the example above we have two different types, so *i* is equal to either 1 or 2 leading to a discrete probability distribution. But in principle we could have an indefinite number of types, where a continuous probability distribution would be the appropriate one to use. In the example from Figure 1let us assign *p* to the probability that T1's opponent is of type 1, i.e., she is a trustee (X=1). It implies that the probability T1's opponent is of type 2, i.e., is an opportunist (X=2), is equal to *(1-p)*. In this scenario we see another cause of the trust problem. Because T1 lacks information about the possible type of T2 it can lead to the absence of an act of trust from her side, and the game will thereby end up in the inefficient equilibrium. This cause of the trust problem will be referred to as the information problem.

Now we move back to the definition of trust and thereby the definition of social capital. Trust was defined as expectations about the actions of others that have a bearing on ones own choice of action, when that action is chosen without observing the actions of those others. These expectations are due to the incentive and information problem a function of the pay-offs and of a probability distribution determining the probability of whether or not one's opponent is trustworthy. Formally, we have

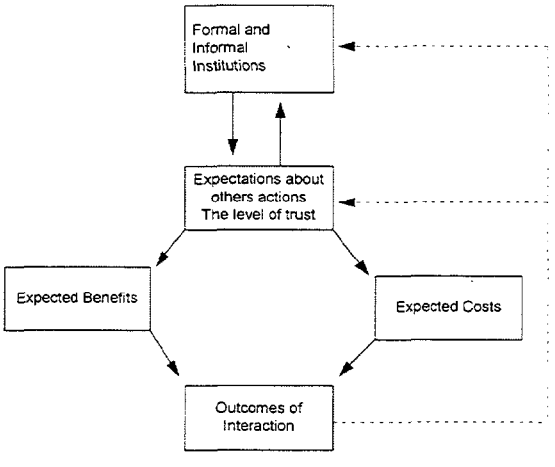
(1) $SC = T = R(\pi, p(X))$, where

SC is social capital, T is trust influencing collective action, R is expectations about others actions, π represent the pay-off functions for the players, and $p(X)$ is the probability distribution assigned to evaluate the trustworthiness of ones opponents.

In order to increase the level of social capital there is a need for mitigating the information and the incentive problems. These problems are interlinked. If we change the incentives in a direction where opportunism pays less, more people will tend to be trustworthy. This will influence the probability distribution for the variable determining the probability that one's opponent is trustworthy.

Another interesting problem is how social capital accumulates? In this paper it is claimed that social capital/trust accumulates through some kind of learning process. The process is illustrated in Figure 2. Agents enter into repeated interactions of the type in Figure 1 with an initial level of trust. They choose their strategies on the background of expectations and pay-offs. Then they realize the actual outcomes of these interactions and acquire information about others behavior. This information influence agents' expectations about others actions (e.g., they update the probability distribution $p(X)$) and thereby the level of trust. The outcomes of interaction also influence formal and informal institutions and thereby pay-offs, a point, which we will return to when looking at social capital from a macro perspective. These two effects influence new interactions and this dynamic process continues over time.

Figure 2 The accumulation of trust/social capital



1.3 THE MACRO PERSPECTIVE

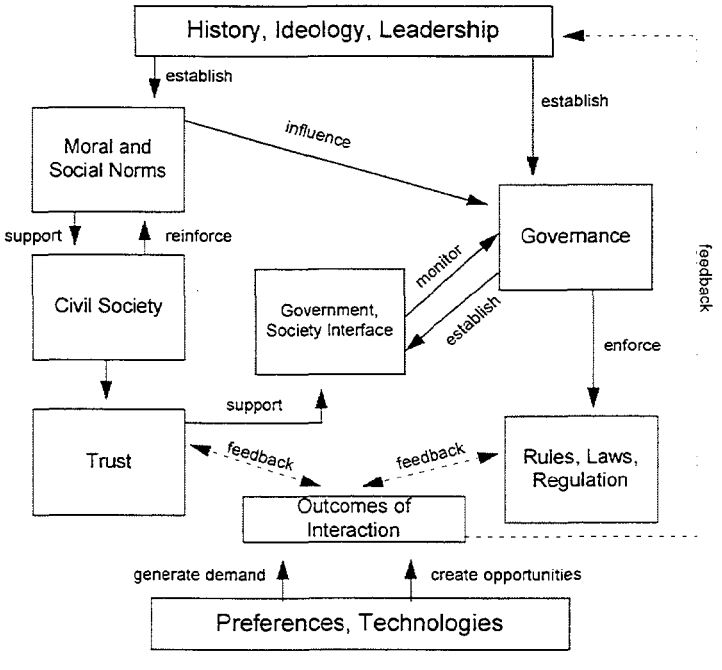
When analyzing social capital from a macro perspective we must look at the institutional context wherein it operates. For this purpose there is a need to state several definitions such that everyone knows what we are talking about.

The institutional environment consists of informal and formal institutions and the interplay between them. North defines institutions as the rules of the game in a society, or the humanly

devised constraints that structure human interaction (North, 1990, p. 23). These constraints are the informal and formal institutions, where the informal ones are constituted by social and moral norms, and formal institutions are the statute law, common law, and regulations. Formal institutions are sometimes characterized as legal norms and are differentiated from social and moral norms by its lack of self-enforcement.

In Figure 3 formal institutions are presented in the boxes on the right-hand side while the informal ones are on the left. Arrows represent the functional relationship between the institutions. Describing all the different relationships is a complicated process, but the figure gives a good illustration of the different factors influencing social capital. It is not the aim of this paper to explore all these relations, but merely to describe the figure in order to raise some ideas for future research that can increase our knowledge about social capital.

Figure 3 The institutional setting



Source: Raiser, 1997, p. 9.

The boxes at the top and the bottom of the figure represent largely exogenous factors to the institutional environment. At the top, history, ideology, and leadership determine the set of

institutions at a particular point in time. At the bottom preferences and technologies are taken to be exogenous. They determine prices and thereby influence the pay-offs in all interactions. By this assumption it is implicitly assumed that it is impossible to substitute social capital for other types of capital and vice versa.

Norms are beliefs about one's own action and/or that of others, which express what action is right, or what action is wrong (Coleman, 1987, p. 135). Norms thereby influence people's strategies. If a person, when evaluating her possible strategies, chooses to abide to a norm, because violating it, when everybody else abides to it, turns out to be costly for herself, we will call it a social norm. In game theoretic terms a social norm is enforced because it is an equilibrium. A social norm could be; choose to be trustworthy, because if you are not, it will turn out to be costly for you. It will be costly since everybody else abiding to the norm will punish you by not being willing to trust you in future transactions. Look at the game in Figure 1when it is of the prisoner's dilemma type (i.e. when $a < 0$ and $b > 1$) and repeated an indefinite number of times. If the future is not discounted too heavily the trust solution is a possible equilibrium and can therefore give an explanation of why people stick to a norm. If the prisoner's dilemma has a final round the only equilibrium is the inefficient monitor-solution. But, if imperfect information is incorporated into the game the trust solution again becomes a possible equilibrium (Kreps and Wilson, 1982). Other game settings are possible in securing that the trust solution is a possible equilibrium.[4] For social norms to be enforced non-compliance must always be detectable.

If a person, when evaluating her possible strategies, chooses to abide to a norm, because the consequences for other individuals by non-conformation impose feelings of guilt and shame on herself, we will call it a moral norm. Platteau gives some good examples of moral norms like the Christian principle *that we ought not to do to others what we would not like them to do to us* and the Kantian principle where *one ought to abstain from any action that would threaten to disrupt social order were everybody to undertake it* (Platteau, 1994b, pp. 768-

[4] For an exposition of the literature see Kreps (1990), Gibbons (1992), and Fudenberg and Tirole (1991).

769). The literature on moral norms stems mostly from sociology and anthropology, and it is definitely a challenge for economists to incorporate the concept into the analysis of human behavior.

Civil society consists of all non-governmental organizations be it the press, leisure clubs, churches, neighborhood associations, and so on. Both moral and social norms and its interplay with civil society can help to mitigate the information and incentive problems in human interactions. A social norm creates better incentives for being trustworthy in order to nurture an agent's reputation for future transactions. A moral norm on the other hand creates incentives for trustworthiness in order to avoid guilt and shame feelings. Civil society creates a forum where information can be shared and spread. A flourishing civil society with lots of connected networks and organizations can help moral norms and information about others' trustworthiness to spread, in order to decrease the information shortages and the incentives for being opportunistic.

On the right-hand side of Figure 3 governance is partly determined by what happened in the past, i.e., by history, ideology, and leadership. But, it is also influenced by the set of social and moral norms. Norms against opportunism and pure self-interest are more likely to create good governance than if cheating and fraud are unpunished. The causality goes the other way around too. If government officials and politicians are involved in rent seeking and corruption leading to bad governance, it will tend to foster non-productive norms. This causality is illustrated by the dynamics in the figure where the influence of governance on human interaction feedback's into history, ideology, and leadership and thereby influence the set of norms. Governance also enforces the laws, rules, and regulations (the legal norms), which structure economic and social interactions. The law can help to mitigate incentive and information problems by influencing pay-offs and establishing technologies revealing the types of agents.

The success of governance or third-party enforcement depends on civil society's beliefs about the sanctioning and monitoring capacities of the government. If agents doubt these

capacities of the government it is likely that laws trying to solve the trust problem will be unsuccessful.[5] The box in the middle of Figure 3 represents the interface between civil society and the government. This box illustrates the importance of trust in government institutions and thereby the importance of trust in the sanctioning and monitoring capacities of the government.

The boxes for civil society, governance, and the society government interface are all a subset of the economic and social interactions box, since a lot of interactions are taking place inside these three boxes. But, by pulling them out in separate boxes it is easier to illustrate the workings of the institutional system.

The box for economic and social interaction is essential, since this is where outcomes are generated and feed back into the system in a dynamic way. This feedback mechanism was previously illustrated in Figure 2; outcomes are realized effectuating change in institutions and in people's expectations about others' behavior, i.e., in the level of trust/social capital. The separate trust-box in Figure 3 illustrates that the institutional setting and its operation influence the pay-off function and the probability distribution in equation 1. This is the same as to say that the institutional setting and its operation influence the level of social capital.

A lot of the literature on social capital tries to capture all the links in Figure 3. This is a reasonable approach, when ones aim is descriptive, or if one wants to explain some empirical findings. But, if we want to increase our knowledge about social capital we need to look at the literature on, and perform new research in, the partial processes described in Figure 3. There is a need to look into the social capital from a micro perspective as mentioned above, look at the theory of social and moral norms, and the theory on governance.

Why is social capital important for the workings of economies? One obvious answer from the preceding discussion, is that it helps to diminish the incentive and information problem in human interaction. This is important, because it lowers transaction costs and help people to

[5] For a game theoretic example see Kammersgaard (1998).

overcome the dilemmas of collective action. Kenneth Arrow has expressed the importance of trust in the following way,

> Trust is an important lubricant of a social system. It is extremely efficient; it saves a lot of trouble to have a fair degree of reliance on other people's word.... Trust and similar values.... increase the efficiency of the system, enable you to produce more goods (Arrow, 1974, p.23)

This chapter has defined the concept social capital and illustrated the problems that need to be solved in order to increase the level of social capital. Secondly, the institutional environment wherein social capital operates was presented in order to give an idea of causal links between different institutions and social capital. The presentation leads to a lot of questions which future research must answer in order to increase our knowledge about social capital.

- How do we solve or influence the information and incentive problem and thereby the level of social capital?
- Is it possible to model the accumulation process for social capital?
- How do institutions influence social capital?
- Can social capital explain the growth residual?
- If social capital contributes to economic growth, how do we invest in it?
- How can we operationalize social capital?

This paper will not try to answer these questions, but the hope is they will inspire researchers and practitioners to get interested in social capital leading to more research in this very complex area of social science.

To underline the importance of research in social capital the next chapter will present the organizational setup of social funds in order to understand the connections between social capital and the effectiveness of these funds.

II SOCIAL FUNDS

In the review of the social funds portfolio, social funds are defined as *quasi-financial intermediaries that channel resources, according to pre-determined eligibility criteria, to small-scale projects for poor and vulnerable groups* (World Bank, 1997a). This chapter looks at the development in the primary objective of social funds over the years and presents the organizational setup for a typical fund. The organizational setup is then used to illustrate different levels where social capital works as an important mediator for and a possible by-product of the workings of social funds. This approach will clarify the links between social capital and social funds and help to figure out where there is a need for future research.

The first social fund was born in 1986 with the Bolivian Emergency Social Fund. It initiated a new stream of World Bank projects which today (end-fiscal 1996) amount to 3% of the total number of active Bank projects, amounting to commitments of over 1.3 billion US dollars.

The primary objective of these social funds has changed over the years. Barrientos and Jorgensen (1998) divide social funds into three generations on the background of their change in objectives over time. The first generation of social funds had as its primary objective to provide employment and income support to people driven into poverty by economic crisis. These funds functioned mainly as a complement to the Bank's structural adjustment programs. The second generation of social funds, emerging in the late 1980's and early 1990's, aimed more at longer term poverty reduction through the provision of social and economic infrastructure.[6] Then, since the mid 1990's the third generation of social funds

[6] Examples of social infrastructure projects are schools, health posts, latrines, potable water, house connections, stoves, cultural centers, old age homes and training centers. Economic infrastructure includes irrigation, roads, sidewalks, drainage, environmental sanitation, bridges, and electricity.

has started to evolve. These funds emphasize participation by the poor communities receiving funds (the beneficiaries) in order to develop their organizational capacity.[7]

This summary of the development in the primary objectives of social funds shows that from being a mediator reducing the impacts of economic shocks, social funds have turned into an instrument, which main objective is to help people build local organizational capacity through their participation in the production of economic and social infrastructure for themselves. This change is a result of the World Banks greater emphasis on social development leading to a more participatory approach in development projects (World Bank, 1997b).

The definition of local organizational capacity and social capital are very similar. Since social capital was defined as trust influencing collective action it is easily seen that local organizational capacity is heavily influenced by social capital. The ability of people to work together, to trust one another, to organize to solve problems, to mobilize resources, to resolve conflicts, and to network with others are influenced by the level of trust. It is thereby clear that the main objectives of social funds today are to build social capital and create sustainable infrastructure that can help people move away from poverty. These two main objectives must be seen as criteria's for the success of social funds from the viewpoint of the World Bank. The following sections will show that these criteria's are closely interlinked because social capital can be a mediator for sustainability and sustainable infrastructure projects can serve as a mediator for the accumulation of social capital.

2.1 THE ORGANIZATIONAL SETUP OF SOCIAL FUNDS

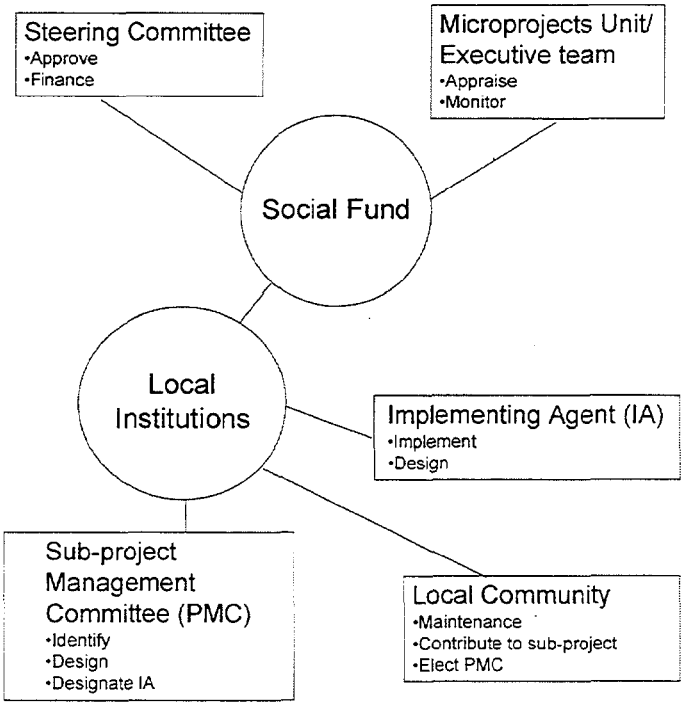
This section will take a closer look at what social funds are and what they do by looking at the organizational setup of a typical social fund. It will help us to identify the different agents

[7] Narayan and Ebbe (1997a, p. 33) defines local organizational capacity as the ability of people to work together, trust one another, and organize to solve problems, mobilize resources, resolve conflicts, and network with others to achieve agreed-upon goals.

and their interactions inside a social fund, and thereby to identify the different levels where information and incentive problems can possibly be present.

The role of a social fund is to disburse grants to approved sub-projects in different areas of a specific country. The fund is setup on the background of a realized need by a donor or by a host country. Figure 4 illustrates the organizational setup of a social fund. The management of a social fund is shared by a Steering Committee and an Executive team. The Steering Committee consists typically of top-level politicians from the host country and representatives of the donor. The role of the Steering Committee is to provide the strategy and policy of the social fund, and to approve and finance proposed sub-projects. The Executive team or microproject unit can be seen as the daily management unit of a social fund. Its main task is to appraise applications for sub-projects and recommend which projects are eligible for funding to the Steering committee. Another important task taken care of by the Executive team is to monitor the progress of all proposed and approved sub-projects.

Figure 4 The Organizational Setup of a Social Fund



A sub-project typically takes place in a local community be it rehabilitation of a school or construction of an irrigation system. The role of the local community is maintenance work on the project and contributing to project costs either financially or through in-kind provision of labor services. The local community must also elect a sub-project management committee (PMC). Their main tasks are to identify projects that can increase the welfare of the community, to provide information for the Executive team, and to designate the Implementing Agent (IA) of a project. The IA can be either the PMC itself, a NGO, the local administration, or a private contractor. As the name indicates the main task for the IA is the implementation of the project. In addition, it takes care of the design of the project in collaboration with the PMC.

The organizational setup shown in Figure 4 works as an illustrator for all the different levels where trust has a role to play in social funds. Think about the trust game from chapter 1 and try to figure out the places where this game or a related game is played in the social fund setting.[8] It is played between the different units illustrated in the figure (the inter-level) and it is played inside each of the units (the intra level). It means trust can be a lubricator for cooperation between the local community, the IA, the Executive team, and the Steering Committee. It is obvious that the local community needs to have a certain degree of trust in the Government and thereby in the Steering Committee for being interested in applying for funds. This constraint relates to the discussion of Government credibility in Chapter 1. At the intra level, trust is crucial between community members in order to help them overcome dilemmas of collective action. The discussion in this paper will therefore concentrate on trust at this level, but for the workings of social funds it is important not to ignore trust at the inter level. One could also choose to think about social capital and social funds through the lens of Figure 3. The two management units are providing the governance while the additional players operate through the civil society box. As mentioned in Chapter 1, it is very difficult

[8] By related is meant that the problems relating to trust can also be illustrated by a simultaneous game (see footnote 3) and thereby also be viewed in an n-person setting.

to analyze social capital in this complex environment. Instead we will look at the relations between social funds and social capital by the help of our analytical tools from Figure 1.

2.2 THE IMPORTANCE OF SOCIAL CAPITAL FOR PROJECT SUSTAINABILITY

For further analysis let us start by defining one of the success criteria's for social funds; that the provided sub-projects are sustainable. By sustainability of sub-projects we mean that the goods and/or the institutions provided by the projects remain functionable and continues to provide basic services for the beneficiaries over time. In a study on microproject sustainability in the Armenian Social Investment Fund it was found that the sustainability of projects was a function of three factors

- the quality of the good produced by the project
- the appraisal quality
- an existing active community

Looking at these three factors in the light of the trust game provides a good explanation of why they influence project sustainability. First, if the participating agents in a social fund initially have a high degree of trust in each other, their initial estimate of the probability that their opponents will act trustworthy, p, will be high. The expected losses by going into cooperative actions are therefore smaller than the expected losses faced by communities with low levels of social capital. A local community with high social capital is therefore more likely to come together and organize itself and apply for funds to improve the social welfare of the community. In an ongoing project and after its completion there are a lot of tasks which require collective action, one of the most important being maintenance of the facility created by the project. Here the level of social capital also has a role to play, because higher level of trust can lead to more cooperation. It means that there is a possible link between high social capital communities and active communities, when active communities are defined by their tradition of self-help and initiative taking.

Secondly, if the quality of the good produced by the project is high the community members will valuate it at a high rate. The high valuation provides better incentives for cooperation on future maintenance work. This can be illustrated by the trust game in Figure 1. Let T1 be an agent deciding whether or not to take part in the maintenance work. If she chooses to take part in the maintenance work without the support of her opponent T2, the cost of doing maintenance is so high for her, that it would have paid better for her to stay out (i.e. $a < 0$ in Figure 1). T1 faces the same two types of opponents mentioned in Chapter 1, trustees and opportunists. Trustees (type 1) are willing to go into maintenance work (their $b < 1$), while opportunists (type 2) are not (their $b > 1$). Let us say that p percent of the local community is trustees and $(1-p)$ percent is opportunists. Now, if the quality of the good produced by the project is really high it will influence people's pay-offs from being trusting and trustworthy. It implies that T1 gets better incentives for going into maintenance work and T2 types get better incentives for helping T1 with the maintenance work (e.g. the trust-trustworthiness pay-offs increases). It means that high quality goods produced by projects can help to reduce the incentive problem. In addition, by observing a high quality good, T1 obtains information about the fact that other agents will tend to value the good at a high rate. She can use this information as an indicator for, that the part of trustworthy players in the population will tend to be higher, than if the produced good had been of poor quality. It induces T1 to be more trusting, because high quality goods diminish the information problem. In all, high quality goods produced by the projects lead to higher valuation of the good and thereby to a higher level of trust. The higher level of trust makes it more profitable for people to cooperate on maintenance work helping the project to be sustainable.

The appraisal quality depends on how well information about possibilities, rights, and responsibilities is distributed to community members. High quality appraisals provide community members with better incentives for applying for funds, because better information about their opponents in the social fund setting and better information about rights, responsibilities, and possibilities decreases the amount of risk community members take

upon themselves, when entering into the necessary transaction for the establishment and running of a sub-project.

This section has thereby shown that the three findings from the Armenian Social Investment Fund study can be explained from our definition of social capital. But most importantly, it led us to the statement of our first hypothesis that social capital has a positive impact on project sustainability.

2.3 THE IMPORTANCE OF SUSTAINABILITY FOR THE ACCUMULATION OF SOCIAL CAPITAL

In this section we will discuss how to think about the accumulation of social capital. A good parameter to look at is $p(X)$, which expresses the proportion of trustworthy people in a given population, or to say it in another way, the probability that one's opponent is trustworthy. From our definition of social capital, it is useful to think about the accumulation of social capital as changes in p, which according to equation 1 changes expectations and thereby the level of trust. It is then important to ask, what influences p. As discussed in Chapter 1 the level of information and incentives can influence p in a static setting. As mentioned previously, when agents realize the outcomes from strategic interaction, they acquire information about others behavior. The information influences agents' expectations about others behavior. We can think about this change in expectations as changes in p. If agents realize successful outcomes from being either trusting or trustworthy, meaning that trust is reciprocated and provide them with welfare improving outcomes, it will tend to have a positive influence on the share of the population being trustworthy. These thoughts can actually be incorporated into some interesting models.[9]

Here we will shortly present an equation arising from evolutionary game theory describing the dynamics in p. We assume that we have a population of agents meeting randomly and pairwise in transactions, for example of the type in Table 1. For this setting to work we need

[9] For Bayesian updates on p, see Bower et al., 1997. For evolutionary approaches on the dynamics in p, see Fudenberg and Levine (1998) and Weibull (1995).

to assume symmetric and simultaneous play. What is interesting about the game in Table 1 is that there are two equilibria, one where both agents are trustworthy and one where both are opportunists. Which one of the two equilibria we end up with depends on each agent's belief about the trustworthiness of the other, i.e. on p. The game is often called the assurance game in the literature. The game can help to illustrate a possible dynamic for social capital.

Table 1 Simultaneous trust game

	Trustworthy	Opportunist
Trustworthy	10,10	4,8
Opportunist	8,4	5,5

The dynamics in p can be presented by the following differential equation:

$$\dot{p} = \left[\Pi(T, p) - \Pi(p, (1-p))\right] * p \qquad (2)$$

Equation 2 is called the replicator dynamic in the literature. Let us first explain the different terms in the equation before going on to talk about the intuition. The term $\dot{p}$ represents the change in the proportion of people being trustworthy. $\Pi(T, p)$ is the expected pay-off from playing trustworthy given the distribution of probabilities, p and $(1-p)$, that agents are trustworthy and opportunists.[10] The last term in the bracket is the average pay-off in the population.[11] Now to the intuition, if agents by playing trustworthy realize a higher pay-off, than the one they would realize if they played like the population on average, the share of people being trustworthy will increase over time. Equation 2 thereby captures the fact that p rises through the successful experiences by agents of being trustworthy. A higher p is equivalent to a change in expectations, where people on average expect their opponents to be

[10] In the game in Table 1 the expected pay-off from being trustworthy is equal to 10*p + 4*(1-p).

more trustworthy. These changes in expectations means an increase in the level of social capital.

Now we have presented an equation that explains why successful outcomes of mutual trustworthiness and thereby cooperation implies an increase in the level of trust/social capital. The question then moves onto, which outcomes will be rated as successful. One outcome which agents definitely will rate as successful is the sustainability of a project. A sustainable project is provided by cooperative actions of the local community with support by all the other external actors in Figure 4. According to Equation 2 social capital is likely to accumulate if the benefits from cooperation are high. When will the benefits tend to be high? When the projects as a result of cooperation are sustainable. This leads to our second hypothesis; sustainability of projects has a positive influence on the accumulation of social capital.

The success of a project is measurable by its sustainability. Sustainability creates a high valued side product, since sustainability leads to the accumulation of social capital. It means we end up with a two-sided causality. Social capital increases the chance of sustainability and sustainability influence the accumulation of social capital in a positive direction. The main policy issue arising from this conclusion is, what shall be done in a social fund setting in project areas where the initial level of social capital is very low? The main research issue arising from this analysis is that there is a need for finding a measure for social capital and go out in the field and measure social capital in order to test our two hypotheses. We will come back to that in chapter 4 when discussing different ways to measure social capital.

[11] It is calculated the same way as the expected pay-off from being trustworthy, except that in this setting one is not playing trustworthy with probability 1, but instead with probability p.

III WORLD BANK INITIATIVES

A lot of work on social capital is going on at the World Bank. The two main departments working on social capital in the Bank are the Social Development Team (SDV) and the Poverty Division (PRMPO).[12] Other departments are also interested in the integration of social capital in their work.

3.1 THE WORLD BANK'S DEFINITIONS

The World Bank does not link its work on social capital to a single definition. The closest they get to a definition is to split the concept up in three parts. The first part is called the narrow concept, the second part the broader concept, and the third part the encompassing concept of social capital.[13] The narrow concept of social capital builds on Putnam (1993). He defines social capital as:

> features of social organization, such as trust, norms and networks that can improve the efficiency of society by facilitating coordinated action (Putnam, 1993, p. 167).

He sees networks and its associated norms as important lubricants of economic systems, because it facilitates cooperation and coordination for the mutual benefits of its members. Horizontal networks are, according to Putnam, more important than vertical ones because they are better at increasing the costs of defection, creating norms of reciprocity, and improving the flow of information and communication (Putnam, 1993, p. 174-175). It means

[12] SDV is part of the Environmentally and Socially Sustainable Development Network (ESSD) and PRMPO is part of the Poverty Reduction and Economic Management Network (PREM).

[13] The definitions are published in Grootaert (1997, p. 78).

that the institutions included in the narrow definition of social capital are horizontal networks and norms.

The broader concept builds on the definition of James Coleman. He writes about social capital:

> Social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common: They all consists of some aspect of social structure, and they facilitate certain actions of individuals who are within the structure (Coleman, 1990, p. 302).

Coleman includes all aspects of social structures, which help solving collective action problems. So, in addition to Putnam's structures (institutions), Coleman adds vertical networks and firms to the broader definition of social capital.

The Bank's third definition of social capital, the most encompassing view on social capital, is inspired by the work of North (1990) and Olson (1982). This definition adds to the broad definition of social capital the political and social environment influencing norms and civil society. This means that institutions like the government, the political regime, the rule of law, the court system, and civil and political liberties is included in the definition.[14]

Both Putnam and Coleman talk about social capital as a tool to overcome collective action problems. The social structures included in their definitions have the potential of doing that. But, let us ask, why can these structures help to solve collective action problems? The answer is obvious, because the structures can influence the level of trust. It means, that the main definitions of social capital by Putnam, Coleman and the World Bank capture important points about social capital, but they seem to include all the social structures which is not a part of social capital itself, but merely the factors influencing it. Instead, we propose to stick to a narrow definition of social capital as trust influencing collective action. It still makes it

[14] Note that by this definition the Bank wants to include more or less everything that goes on inside Figure 3.

possible to talk about different structures like networks, norms, firms, and governments and their influence on social capital

Why do we propose to stick to this narrow definition? First, it makes the concept less complex, and thereby easier to analyze and model. Look at an example, where we use the broad definition of social capital. Over time a society often changes from a traditional society with small communities having a limited number of interactions with the outside world to a modern society with lots of impersonal interactions. In the literature it is often claimed that when we move from traditional to modern society a lot of close-knit networks are broken down and replaced by third-party enforcement by the government or the state (see e.g. Platteau, 1994a). If we accept this, would we assume that social capital has decreased or increased? Ones intuition says that it is more or less unaffected, because agents would still tend to play trustworthy, not in order to nurse their reputation, but merely because of the sanctions imposed by the third-party enforcer in case of defection.[15] But, according to the broad definition, one would obviously say that social capital has decreased, since there has been a decrease in the number of networks, which give agents the incentive to be trustworthy in order to nurse their own reputation. If we stick to our definition instead, it is more consistent with the intuition that social capital is more or less unaffected by the transition from traditional to modern society.

One would expect that if we look at the most encompassing view on social capital, it is more likely to show that social capital is unaffected by the change in society, since both networks and third-party enforcers are included in that definition. That is a reasonable comment, but when moving from networks-enforced trust to government enforced trust, there is definitely a change in the power structure of society.[16] This change is likely to influence social capital. The influence is impossible to measure from the encompassing definition of social capital,

[15] This is of course taking everything else as being unchanged by the transition, which is highly unlikely. The example, though, is still a good way to illustrate our point.

[16] For literature dealing with the influences of power structures on social capital, see Harriss and De Renzio (1997), Putzel (1997), and Beall (1997).

but is easier to cope with, if we look at the trust level. This lead us to a second point. Social capital is easier to measure when we stick to a narrow definition. It is easier to ask and get good answers by asking people about trust in other network members and in the government, than it is to measure norms, laws, networks, and governments as a part of social capital.

Finally, if social capital over the years cannot be put into an economic model our guess is that it will not have many chances for surviving at least as an economic term.[17] The narrower and less complex we keep the definition of social capital, the easier it will be to incorporate into a model.

[17] See Krugman (1995) for a discussion of the main constraint for ideas to be accepted in economics. His claim is that the main constraint is that ideas should fit into formal models.

IV OPERATIONALIZING SOCIAL CAPITAL

Before launching into the operationalization of social capital, it may be useful to recap its conceptual definition. Social capital was defined as trust influencing collective action, and trust was defined as expectations about the actions of others that have a bearing on ones own choice of action, when that action is chosen without observing the actions of those others. So, to find a measure of social capital we need to find an indicator for trust measured as expectations about others' actions. As mentioned in Chapter 1 those expectations is a function of the level of information about others, especially about their pay-offs.

A good estimator for social capital was proposed in Chapter 1 and 2 by the probability measure p. It measures the probability that ones opponent is trustworthy, or said in another way the proportion of people in a given area (population), who are trustworthy. A measure of this kind is actually available, but only at the country level and for a limited number of countries.[18] It stems from the World Values Surveys from 1981-84 and 1990-93. It is a qualitative survey asking people all over the world about their values and norms. One of the questions was *Generally speaking will you say that most people can be trusted, or that you can't be too careful in dealing with people?* This question then led to the construction of a variable measuring the proportion of people in a given country which answered that most people can be trusted. This is definitely a good indicator for our variable p from earlier chapters.

This indicator for social capital has also been used in the literature on social capital. Knack and Keefer (1997) used it to demonstrate that countries with a more equal income distribution, higher income, less corruption, more human capital, and an ethnically

[18] The sample includes 29 countries. For a closer look at countries included in the sample see Knack and Keefer, 1997, p. 1285.

homogenous population tend to have higher levels of social capital. La Porta et al. (1997) test the influence of trust on other variables like government efficiency, participation, and social efficiency and concludes that trust has a positive influence on all three variables.

The major drawback of this measure of trust is that it is a subjective evaluation by people, which always bears the danger of providing wrong answers. To limit this measurement error the question is stated as objective as possible, i.e., people are not asked about their own trustworthiness, but about others'.

Putnam's proxy for social capital is the density of voluntary organizations in a given area. The idea is that these organizations provide people with information about their counterparts and give them better incentives for acting trustworthy. Therefore, more organizations means more trust. Paldam and Svendsen (1998) propose a method to check Putnam's proxy for consistency. First, interview people and ask them about the number of organizations they belong to. Afterwards, identify the organizations and find out how many members they have. This will give two estimates for the density of voluntary organizations. If the two estimates give the same results we have a good indicator for the density of voluntary organizations, if not, we know that there are some measurement errors, which need to be corrected.

This indicator for social capital also has a major drawback. First, estimating the density of voluntary organizations on the macro level makes it difficult to control for negative social networks like the Mafia and organizations gaining access to rent seeking.[19] Fukuayma, in one of his studies, tries to limit this problem by assigning weights to different organizations, such that one can give negative weights to negative social networks (Fukuyama, 1997). Although there are good intentions in doing so, the constructed proxy will still have its limitations, since the weights are very difficult to estimate. A second problem with Putnam's proxy is that Knack and Keefer are able to reject the hypothesis that a higher density of voluntary organizations improves economic performance in their cross-country study based on the

[19] For a theorization of the harmful effect of rent-seeking organizations, see Olson, 1982

World Values Surveys (Knack and Keefer, 1997, pp. 1272-73). The opposite effects of positive and negative social networks can explain their findings.

Putnam's proxy will tend to work better in small homogeneous areas, because it is easier to avoid negative networks and power mechanism in these areas. On this smaller scale Narayan and Pritchett (1997b) constructed an index measuring the density of organizations and the quality of these organizations in 87 communities in Tanzania.[20] They found that this indicator of social capital influences household income by 20 to 30 percent.

Different ways to measure social capital has been followed in the literature, but nearly all of them is a variant of either Putnam's proxy or the indicator from the World Values survey. This review of different ways to measure social capital lead us into the question of how to measure it in relation to social funds, and especially which approach to follow in order to test our two hypotheses from Chapter 2.

4.1 HOW TO MEASURE SOCIAL CAPITAL IN RELATION TO SOCIAL FUNDS

Following the conceptual definition of social capital and the link of it to social funds this section will describe a reasonable approach to follow in order to measure social capital in social fund settings. To test our theory of mutual causality between sustainability of social fund projects and social capital the following approach would be reasonable:

A. measure initial social capital through qualitative interviews asking people in project and non-project areas *Generally speaking will you say that most people can be trusted, or that you can't be too careful in dealing with people?* (the trust question)

B. measure social capital in the same way just after the completion of the subprojects

C. measure social capital *x* years after completion together with measures of project sustainability

[20] The quality of a group is measured by how heterogeneous, how horizontal, and how well it is functioning.

This procedure will give us three measures of social capital, initial social capital SC_I, intermediate social capital SC_M, and final social capital SC_F, plus a measure of sustainability S, for each project area included in our sample. For the non-project areas we will of course only have the three measures of social capital. From these we can construct variables measuring changes in social capital through the project cycle:

$$\Delta SC_1 = SC_M - SC_I$$

$$\Delta SC_2 = SC_F - SC_M$$

$$\Delta SC_3 = \Delta SC_2 + \Delta SC1 = SC_F - SC_I$$

We can then test our hypotheses about the causalities between social capital and sustainability by estimating a simultaneous equation model of the form

$$S = f(SC_I, X)$$

$$\Delta SC = f(S, X)$$

where X represents a vector of exogenous variables influencing the change in social capital and sustainability. Or we can simply get an idea about the validity of the hypotheses by looking at the correlation coefficients between the variables.

In addition, we will be able to measure if communities in project areas have a significant higher improvement in social capital over the project cycle than non-project communities. It will, together with the analysis of correlations between sustainability and social capital accumulation, give us an idea of whether or not social fund projects matter for social capital accumulation.

Now does the Bank already have some secondary data, which can be used as an indicator for initial level of social capital in the areas or countries, where social funds have existed in five

to ten years? Unfortunately, none of the existing data sets reviewed for this were contained indicators for social capital.[21]

An alternative approach of measuring the initial level of social capital is, through questionnaires or historical analysis, to try to reconstruct the level of social capital in project areas five to ten years ago. The measure one ends up with will be more unreliable than the measure for the current level of social capital, since answers to questions about the situation five to ten years ago is not as accurate as answers to questions about the present state. But, it is better to have some measure of initial social capital than having none.

The data on social capital from the World Values Survey does not give us any idea about the level of social capital in the countries where social fund projects are present. This is because none of the 29 countries included in the sample coincide with the countries where there are social fund projects. Even if there were, the chances are good that this measure of social capital will be too aggregated to give any meaning for its level in a sub-project area. The only way forward is to start collecting data from now on, and analyze them following a procedure like the one sketched above.

The World Development Report (2001) will be on poverty. It is of special interest that social capital surveys for 30 countries will be used as one piece of background material for WDR 2001. The countries which will be included in the sample are not settled yet, but Ghana and Uganda will definitely be two of them. A pilot survey on social capital is already being performed in Ghana by Ghana Statistical Services, GSS. They have constructed a questionnaire with some interesting questions which can be used to test our hypotheses about social fund projects. The most relevant questions from the questionnaire for our purposes are listed below:

[21] LSMS household surveys for Albania, Ghana, Guyana, Nicaragua, Peru and Romania, together with a questionnaire from a priority survey for Zambia.

- Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?
- Do you think people would try to take advantage of you if they got the chance, or would they try to be fair?
- Now I want to ask you how much you trust different groups of people. As I read each group please tell me if you feel you can trust all of the people in that group, most, some, or none of the people in that group (7 different groups listed).
- Next, I'm going to read a list of institutions. For each please tell me how competent and efficient it is. First-- would you say it is very competent and efficient, somewhat competent and efficient, neither competent and efficient nor incompetent and inefficient, somewhat incompetent and inefficient, or very incompetent and inefficient (13 institutions listed).

A good approach to follow for social funds would be to incorporate social capital surveys of the same type as the ones mentioned above and include them into on going social funds research. But since the questions from above only look at social capital from a static point of view there is a need to supplement with questions trying to reconstruct previous social capital, or to repeat the surveys over a certain time frame. Then the questions and subsequent analyses can be used to test our hypotheses about social fund projects and social capital.

V CONCLUSION

The main focus of development projects has moved away from the creation of employment opportunities and infrastructure towards establishing participatory approaches involving the beneficiaries into the development process. This change is caused by a realization that by involving vulnerable groups into the identification, implementation, and maintenance process the success rate of projects will increase and at the same time empower the beneficiaries to take better care of their development needs in the future.

This paper has clarified that this realization is closely connected to the concept social capital. Two hypotheses were stated for this purpose:

1. Higher social capital means better chances for project sustainability.

2. Sustainability of projects has a positive influence on the level of social capital.

Through the lens of social fund projects different ways to measure social capital and to test these hypotheses were reviewed, and the importance of a definition and a theory for social capital was discussed.

If empirical data confirms our hypotheses, there is a need to increase our knowledge about social capital. It is of central importance to build and test a dynamic theory of the concept that can provide us with some recommendations on how to influence the level of social capital. An answer to that question is of crucial importance to social funds projects and development in general. Areas with low levels of social capital are likely to include some of the most vulnerable people. If we choose not to provide projects in these areas, because they do not seem to be successful, these people will be marginalized even more.

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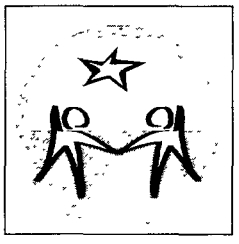

Summary Findings

There is a growing consensus among development practitioners that participatory mechanisms are necessary in securing the success of development projects Through the lens of social funds this paper looks at the concept social capital in order to explain why participation is crucial for development outcomes Two hypotheses are stated regarding the causalities between social capital and project sustainability On the background of a definition of social capital different operationalizations are reviewed in order to propose a methodological approach for testing the hypotheses

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